

Electrochem 2022

Edinburgh, 4-6 September 2022

John McIntyre Conference Centre, Pollock Halls, The University of Edinburgh



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Detailed Programme

Sunday 4 September

Time	South Hall complex, Pollock Halls
19:00-23:00	Welcome Reception

Monday 5 September

Time	Fundamental and Applied Electrochemistry	Energy and Environmental	Electroanalysis and Sensors	Biotechnology	Corrosion Science and Engineering
	Pentland East	Pentland West	Boardroom	Holyrood	Prestonfield
08:30-09:00	Registration Foyer Refreshments Centre				
09:00-09:10	Opening Remarks Pentland Room				
09:10-10:25	Geoffrey Barker Medal & Lecture: R.A.W. Dryfe Pentland Room				
10:25-10:40	Sponsors Pentland Room				
10:40-11:20	Refreshments Centre Poster Session Group 'Monday' Foyer, Concourse, Salisbury Room, Prestonfield Room				
11:20-11:40	FAE 01 - A. Cuesta Ciscar The Dehydrogenation of Methanol on Pt Electrodes as Revealed by Time-Resolved ATR-SEIRAS	EE 01 - T. Li Driving Organic Electrosynthesis by CO ₂ Reduction electrocatalysts	ES 01 - H. Ben-Yoav Intelligent multi-electrode arrayed sensor for rapid detection of lactate in sweat	B 01 - A. Parkin Optimising Voltammetry Measurements and Computational Analysis Methods to Quantify Protein and Enzyme Electron Transfer	CSE 01 - M. Goldsworthy The Effect of Ammonium Ions on the Corrosion Resistance of Zinc – Aluminium and Zinc – Aluminium - Magnesium Coated Steel
11:40-12:00	FAE 02 - R. M. Arán-Ais On the role of adsorbed OH in the alcohols oxidation mechanism	EE 02 - S.K. Padamati CO ₂ reduction using Hybrid Diamonds	ES 02 - A. O'Riordan Electrochemical-based pH control at gold interdigitated electrode array sensor devices: towards reagent free electroanalysis	B 02 - D.A. Koomson Exploring novel viologens as redox mediators for electrochemically-driven enzymatic reactions	CSE 02 - A. Keogh Effect of Microstructure on Localised Corrosion and Atmospheric Stress Corrosion Cracking of 15-5 PH Stainless Steels

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12:00-12:20	FAE 03 - M. Lunardon Walking on the wild flatland: what atoms tell us under electrochemical condition	EE 03 - Z. Ertekin Electroreduction of CO ₂ via electrografted cobalt substituted phthalocyanine on glassy carbon electrode	ES 03 - F. Moore Developing an Electrochemical Glucose Sweat Sensor using Nanoband Electrodes	B 03 - D. Leech Enzyme electrodes: evaluating and optimising signal responses	CSE 03 - M. Jones Mathematical Modelling of Aqueous CO ₂ Corrosion and the Impact of Temperature and Pressure on Surface Conditions
12:20-12:40	FAE 04 - N.W. Alhathloul Dicarboxylation of Phenyl-substituted Alkenes by Electrochemical Reduction in the Presence of CO ₂	EE 04 - M.A. Buckingham Environment effects on electrodeposition of Cu oxide nanomaterials	ES 04 - I. Seymour Nanocoil based generator collector electrodes for dissolved oxygen quantification	B 04 - T. Ha Electrochemical Detection of Catalysis in a Single Enzymatic Junction	CSE 04 - A.I. Ikeuba The influence of pH on the corrosion film stability of Q-phase in aqueous solutions: EIS and AFM study
12:40-13:00	FAE 05 - J. Fernández-Vidal Investigating the Presence of Adsorbed Species on Pt Steps at Low Potentials	EE 05 - P.K. Sharma Electrochemical CO ₂ reduction to multi-carbon products using Cu-Ag gas diffusion electrodes	ES 05 - R. Bennett Co-immobilisation of redox polymer and enzyme at microarray and nanoarray electrodes for in vivo biosensing applications	B 05 - C. Mcbeth Induced electrochemical luminescence at carbon nanotube porins embedded within biological membranes	CSE 05 - V. Dickson Influence of polymeric design on the paint delamination of coated steel substrates
13:00-13:50	Lunch Centro Poster Session Group 'Monday' Foyer, Concourse, Salisbury Room, Prestonfield Room Joint RSC-SCI electrochemistry-related committee meeting Boardroom				
13:50-15:05	Castner Medal & Lecture: D. Hodgson Pentland Room				
15:05-15:15	Sponsors Pentland Room				
15:15-15:35	Albery Lecture: A.R. Mount Pentland Room				CSE 06 - W. Intaphan Elucidation of Charge-Transfer Mechanisms under Paint Films
15:35-15:55					CSE 07 - J.J. Tully A Rapid, Laboratory-Scale Approach to the Direct Measurement of the Anodic Corrosion of Boron Doped Diamond Electrodes
15:55-16:15					CSE 08 - R. Alcivar-Andrade

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						In-situ mapping of stress corrosion cracking using the scanning electrochemical probe
16:15-16:55	Refreshments Centro Poster Session Group 'Monday' Foyer, Concourse, Salisbury Room, Prestonfield Room					
16:55-17:15	FAE 06 - A.E. Russell Further understanding the electrochemistry and oxygen reduction activity of La1-xCaxMnO3 using in situ XAS and XES	EE 06 - N. Robertson Bismuth-based materials for supercapacitors and batteries	ES 06 - R. Van Echelpoel Electrochemical sensor for on-site multidrug detection at festivals	B 06 - D. Corrigan Genotypic and phenotypic electrochemical sensing strategies for detection of antimicrobial resistance	CSE 09 - E. Bluett The Atmospheric Corrosion Of Trivalent Cr Metal / Cr Oxide Coatings For Packaging Steels	
17:15-17:35	FAE 07 - S.L. Horswell Composition Effects on Lipid Electrochemical Phase Behaviour	EE 07 - X. Yi Phase control of nanoflower nickel hydroxide for hybrid-supercapacitor applications	ES 07 - M. Valente Rapid Ethidium Bromide detection using Ultramicroelectrode Sensors	B 07 - A. Tendero Cañadas Platinum black microelectrodes for monitoring changes in nitric signalling in the ageing bladder	CSE 10 - N. Farrer Thermal aging and degradation of epoxy coatings at oxidised interfaces	
17:35-17:55	FAE 08 - F. Carlà The I07 Surface and interface diffraction beamline at Diamond Light Source: a facility for investigating surface processes in electrochemistry	EE 08 - D. Niblett Designed Porous Electrodes – Application of 3D printed porous electrodes for fuel cells and electrolysis	ES 08 - F. Pérez Evaluating the effect of different chemical mediators on the performance of second-generation oxidase biosensors	B 08 - R. Sánchez-Salcedo Immunosensor development for detection of the biomarker IL-6 by impedimetric techniques	CSE 11 - Q. Liu Molten salt corrosion characteristic of stainless steel in solar power generation systems	
18:00-19:00	RSC Electrochemistry Interest Group AGM Prestonfield SCI Electrochemical Technology group AGM Boardroom					
19:00-22:30	Gala Dinner South Hall complex					

Tuesday 6 September

Time	Pentland East	Pentland West	Boardroom	Holyrood	Prestonfield
08:30-09:00	Registration Foyer Refreshments Centro				
09:00-10:15	UR Evans Award & Lecture: A. Davenport Pentland Room				
10:15-10:30	Sponsors Pentland Room				

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10:30-11:10	Refreshments Centro Poster Session Group 'Tuesday' Foyer, Concourse, Salisbury Room, Prestonfield Room				
11:10-11:30	FA 09 - S.F.L. Mertens Electrochemistry beyond Redox Processes: from Collective to Single Molecule Switching	EE 09 - E. Dickinson The "square plot": a graphical heuristic for differential analysis of Li-ion cell state and aging condition	ES 09 - A. Holzinger Electrodeless electropolymerisation of PEDOT/Au thin films at a polarised liquid liquid interface	B 09 - W. Ensinger Single conical nanochannels as core of electrochemical biomolecular sensors	CSE 12 - L. Smith Investigating the effect of environmental and hydrodynamic conditions on CRUD deposition in accelerated coolant flow
11:30-11:50	FA 10 - H.A. Al Nasser The Modified Liquid-Liquid Interface: The Effect of an Interfacial Layer of MoS ₂ on Ion Transfer	EE 10 - R. Gutru The stability of LaMO ₃ (M=Co, Ni, Mn, Fe) perovskites in alkaline medium and their application as Bi-functional oxygen electrocatalysts	ES 10 - N. Noriega Exploring the scope of pristine Ti ₃ C ₂ T _x MXene for electroanalytical sensing	B 10 - F. Rawson Electrochemical Therapeutics for the Treatment of Cancer	CSE 13 - C. Ozturk Investigating Localized Corrosion Behaviour of 316L Stainless Steel In-service Condition of Spent Nuclear Fuel Canister
11:50-12:10	FA 11 - K. Brennan Modelling the Electrochemical Reduction of Cyanide for Ambient Ammonia Production at the Metal-Water Interface	EE 11 - A. Elgandy A Molecular Precursor Approach Triggering The Growth of Nano-Chevre-Phase Mo ₆ S ₈ for Energy Conversion and Storage Systems	ES 11 - S.U. Khan Singlet oxygen-based photo-electrocatalysis from photosensitizer structure to plasmonic enhancement!	B 11 - J. White Visualising and Exploring the Electrochemical and Electronic Properties of Individual Ferritins	CSE 14 - D. Capone Effects of Zn Injection on 316 Stainless Steel Oxide under Advanced BWR Conditions
12:10-12:30	FA 12 - N. Rey-Munoz Electrosynthesis of Photoactive Poly(3-hexylthiophene) at an Electrified Liquid-Liquid Interface.	EE 12 - A.K.S. Kumar Single-Entity Electrochemistry: Evaluating Electrocatalysts for Batteries	ES 12 - V. Juska Miniaturised interfaces for biological and chemical sensing	B 12 - I.J. Bennett-Wright The properties and tunable nature of electrochemically-grown dipeptide-based hydrogels at single microelectrodes	CSE 15 - H. Bullock Investigation of molten salt corrosion and oxidation of Ni-based alloy: A combined experimental and numerical approach
12:30-12:50	FA 13 - A.A. Papaderakis Taming electrowetting using highly concentrated electrolytes	EE 13 - S. Scott Gelatin and Alginate Binders for Simplified Battery Recycling	ES 13 - N. Rojas Sanabria Developing PEDOT/Gold Composite Films at a Polarised Liquid Liquid Interface for Dopamine Sensing	B 13 - B. Myers Engineering the Spark into Bacterial Type-4 Pilin Nanowires	CSE 16 - T. King Molten Lead Induced Corrosion of Fission and Fusion Structural Materials
12:50-13:40	Lunch Centro Poster Session Group 'Tuesday' Foyer, Concourse, Salisbury Room, Prestonfield Room				
13:40-14:00	FA 14 - D. Fermín Compositional Dependence of the Structure and Electronic	EE 14 - J.M. Pringle The development of new ionic electrolytes for energy storage devices	ES 14 - M. Raykova Electrochemical detection of ampicillin on Au/AuNS/apt/MCH platform	EE 19 - M. Bayati Ammonia Fuel Cell: Path to Net Zero	CSE 17 - R. Bhamji Understanding the corrosion behaviour of deep pits under

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	Properties of LaFeO ₃ Thin-Films Photoelectrodes				thick deposit layers in aqueous CO ₂ environments
14:00-14:20	FA 15 - N. Guijarro Learning from semiconductor-liquid interfaces: a guide to improve photoelectrochemical devices	EE 15 - A. Wain Infrared and Raman Spectroelectrochemistry of Magnesium Battery Electrolytes	ES 15 - J. Schram Local conversion of redox inactive molecules into redox active ones: formaldehyde based derivatization strategies for electrochemical sensing	EE 20 - A. Lahiri Effect of lattice strain in commercial nickel on hydrogen evolution reaction	CSE 18 - K. bin Abdul Razak Monitoring corrosion under insulation using LPR probes
14:20-14:40	FA 16 - L. Shao Templated electrodeposition of nanoscale materials	EE 16 - D. Skelson Electrocatalytic reduction of CO ₂ with [Mn(CO) ₃ (α -diimine)Br] in Room-Temperature Ionic Liquids probed with IR spectroelectrochemistry	ES 16 - D. Duleba Oddities in Nanopore Ion Transport at the Low Electrolyte Concentration Regime	EE 21 - K.W. Nam Conductive 2D Metal-Organic Framework for High-Performance Cathodes in Aqueous Rechargeable Zinc Batteries	CSE 19 - X. Wen Carbon steel corrosion and fusion bonded coating deterioration in the liquid phase of anaerobic digestion
14:40-15:00	FA 17 - S. Thomas Few-layer transition metal dichalcogenide thin films via non-aqueous electrodeposition	EE 17 - A.F. Quintero Jaime Electrosynthesis of surfactant-free CNT@PEDOT nanocomposite thin films at a polarized liquid liquid interface for supercapacitor applications	ES 17 - H. Shao Real Time Soil Nutrients Monitoring	EE 22 - M. Gong Reaching High Loading of Atomic Iron in Fe-N/C Oxygen Reduction Catalysts for Proton Exchange Membrane Fuel Cells	CSE 20 - R. Jacklin Watch it Grow! The Evolution of Iron Carbonate in a Demanding CO ₂ Environment
15:00-15:20	FA 18 - H. Chen Predicting Voltammetry Using Physics-Informed Neural Networks	EE 18 - E. Avella Water Splitting Driven by combining a Z-scheme with photocatalysis at the Interface between Two Immiscible Electrolyte Solutions (ITIES)	ES 18 - P. Lasserre Taking advantage of the electrochemical properties of actinorhodin to monitor production, susceptibility and resistance of a model antibiotic	EE 23 - H.A. Elwan Protic Ionic Liquids: Potential Electrolytes for High-Temperature Proton Exchange Membrane Fuel Cells	CSE 21 - P. Thomas Microstructural evolution due to CO ₂ Oxidation and Carburisation in 9Cr-1Mo Steel
15:20-16:00	<p style="text-align: center;">Refreshments Centro</p> <p style="text-align: center;">Poster Session Group 'Tuesday' Foyer, Concourse, Salisbury Room, Prestonfield Room</p>				
16:00-17:15	<p style="text-align: center;">Faraday Medal & Lecture: B. Roldán Cuenya</p> <p style="text-align: center;">Pentland Room</p>				
17:15-17:30	<p style="text-align: center;">Conference Awards Pentland Room</p>				

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